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Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, D.C. 20554

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Federal Communications Commission  
Office of Secretary

In the Matter of: )  
)  
Amendment of Section 90.266 of the ) RM - \_\_\_\_  
Commission's Rules To Adopt Rules )  
Governing the Secondary Use of )  
Radio Channels in the 2-25 MHz Radio )  
Frequency Band )

**PETITION FOR RULEMAKING OF FLASH COMM, INC.**

Flash Comm, Inc. ("Flash Comm"), by its attorneys and pursuant to Section 1.401 of the Commission's rules, hereby petitions the Commission to initiate a rulemaking to adopt regulations for the secondary use of channels in the high frequency ("HF") radio band from 2-25 MHz.<sup>1</sup> Due to unique atmospheric propagation effects, the HF band is endowed with characteristics making it particularly useful for long distance communications. In order to ensure that this unique resource is not squandered, the FCC has long maintained policies restricting the availability of authorizations in the band. However, because new secondary, non-interfering applications are being developed for the band that do not preclude the use of HF frequencies by other applicants relying on the unique characteristics of HF communication, Flash Comm urges

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<sup>1</sup> In February, 1996, Flash Comm filed an application and associated waiver requests to implement a new system operating in the HF band under Part 90 of the Commission's Rules. *See FCC Public Notice*, DA 96-319 (March 8, 1996). Although initially opposed by government agencies, in conjunction with NTIA, Flash Comm developed a series of conditions for licensing in that band that protected government operations. *See Letter from Eric W. DeSilva, counsel to Flash Comm, Inc. to William Caton, Acting Secretary of the Federal Communications Commission* (March 31, 1997). This petition for rulemaking is being filed at the request of the Wireless Telecommunications Bureau ("WTB") staff to consider codifying similar conditions in its rules for other applicants. The WTB staff have also indicated that Flash Comm's application will be granted contemporaneously with public notice of this filing.

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the Commission to adopt new regulations recognizing these technologies and permitting their use.

## **I. Introduction**

Due to the long distance propagation of HF radio signals caused by ionospheric reflection and scattering, HF spectrum has been a closely guarded resource. In effect, certain sub-bands within the HF spectrum – which vary depending upon the time of day, season of the year, and sunspot cycle – "propagate" over long distances even with the use of relatively little power. If conditions are proper, a relatively low power signal can travel across the United States. On the other hand, the frequencies that are "propagating" from one location to another change quickly, are often less than predictable, and are prone to environmental noise from a variety of sources.

Recognizing the singular nature of the band and desiring to preserve the HF band for applications that uniquely require this specialized propagation mode, the FCC developed policies limiting assignments in the HF band. Specifically in the context of private land mobile radio services, Section 90.266 of the Commission's rules limit HF authorizations:

- 1) To provide communications circuits to support operations which are highly important to the national interest and where other means of telecommunications are unavailable; [or]
- 2) To provide standby and/or backup communications circuits to regular domestic circuits which have been disrupted by disasters and/or emergencies.

Under its HF licensing policies, the FCC also typically limited eligibility to Power, Petroleum, Special Industrial, and Telephone Maintenance radio service eligibles, although requests by other eligible users are permitted on a case-by-case basis.<sup>2</sup>

In February of 1996, Flash Comm filed an application and associated waiver requests to allow it to use channels in the HF band on a secondary basis for a new remote tracking and short message service.<sup>3</sup> Following up on concerns expressed by the Department of Defense and the National Telecommunications and Information Administration, Flash Comm negotiated a series of licensing conditions that are designed to protect government operations in the HF band.<sup>4</sup> The FCC has now expressed interest in codifying these conditions, and Flash Comm has responded with this petition for rulemaking. The rules proposed herein are intended to track the licensing conditions negotiated with NTIA and DoD, with only editorial modifications and clarifications appropriate for codification.

## **II. Proposed Revisions to Section 90.266 of the Commission's Rules To Permit Operation of Secondary Systems in the HF Band on a Non-Interfering Basis**

In order to protect government and other operations in the HF band, while permitting the operation of secondary, non-interfering terrestrial systems, Flash Comm has proposed revisions to Section 90.266 of the Commission's rules. Under Section 90.266 as it now exists, licenses are available in cases satisfying either the "national interest" or "backup communications" conditions

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<sup>2</sup> 54 R.R.2d 432 (stating "In situations where applicants can demonstrate particular requirements satisfying [the Commission's HF licensing policies], the Chief of the Private Radio Bureau is hereby authorized to consider them on a case-by-case basis.").

<sup>3</sup> See *FCC Public Notice*, DA 96-319 (March 8, 1996).

<sup>4</sup> See Letter from Eric W. DeSilva, counsel to Flash Comm, Inc. to William Caton, Acting Secretary of the Federal Communications Commission (March 31, 1997).

in Section 90.266. Flash Comm proposes that this section be modified to add an additional category – secondary operations – that would be permitted subject to certain conditions.

Specifically, Flash Comm proposes the following language be added as a new subsection (b)(3) to Section 90.266:

**§ 90.266 Long distance communications on frequencies between 2 and 25 MHz.**

...

- (3) To operate low power, secondary burst communications systems on a commercial or private basis that comply with the following conditions:
  - (i) All transmissions in the HF band shall be on a secondary basis to other licensed users of the band;
  - (ii) In addition to the equipment authorization requirements of Subpart J of Part 2 and the technical specifications of Part 90 of the Commission's Rules, HF systems under this paragraph shall comply with the following conditions:
    - (A) The maximum total radiated power shall be no more than 1 Watt;
    - (B) No HF transmit antenna shall have more directivity than a half-wave dipole or quarter-wave monopole;
    - (C) The total radiated power shall be spread over a 2.8 kHz bandwidth; and,
    - (D) All transmissions in the HF band shall be preceded by a digital station identifier that uniquely identifies the transmitter.
  - (iii) Operations under this paragraph are conditioned upon coordination with NTIA, and any federal agencies specified by NTIA, and requires written approval from NTIA setting forth the total aggregate power permitted in the band and the frequencies of operation. Such frequencies of operations are constrained to a specified list of channels that:
    - (A) includes only bands available for Part 90 operations;
    - (B) does not include any bands designated for Amateur Radio Service, Aeronautical (route or en route) Services, Maritime Distress, Radio Astronomy, or Time Standard Operations; and,
    - (C) preserves a 15 kHz guard band between any bands designated for Amateur Radio Service, Aeronautical (route or en route) Services, Maritime Distress, Radio Astronomy, or Time Standard operations.
  - (iv) The system shall log and make publicly available via an Internet-accessible database the time, frequency, location, and duration of all HF transmissions for the prior 24 hours, and the data shall demonstrate that:

- (A) The average length of individual transmissions in the band does not exceed 2 seconds on average or 4 seconds peak;
  - (B) The accumulated system transmissions on any individual HF channel shall not exceed 36 seconds in any hour in any sector of the country defined by the 5 degree latitude and longitudes; and,
  - (C) The accumulated average power density for all daily transmissions spread over the continental United States shall not exceed 30 dB above kTB, which is a nationally recognized level for "quiet rural sites."
- (v) All HF transmissions shall be controlled by a master control center capable of:
- (A) shutting down all transmissions in a period of a national emergency;
  - (B) allowing emergency traffic to continue during a period of national emergency; and
  - (C) ceasing operations on any channel or channels within one hour after a designated point of contact, available on a 24 hour basis, seven days of the week, is notified by an authorized official of NTIA.
- (vi) All HF transmission shall be controlled by a master control center designed to ensure transmissions occur only on channels not in use by other licensees by:
- (A) Using a minimum of at least 6 diverse clear channel assessment sites when fully operational, which together are capable of assessing HF channel occupancy with greater than 95 percent reliability throughout the continental United States;
  - (B) Ensuring that no HF transmissions occur on a channel unless the channel is declared clear by the master control center and the HF transmission can be completed within ten seconds of the channel assessment by the master control center; and,
  - (C) Ensuring that no transmitter stores a clear channel for transmission more than 5 seconds.

In addition, the Commission should modify subsection (f) of Section 90.266 as follows (new text designated by underline):

90.266(f): Only 2K80J3E, 100 HA1A, 100HA1B and those emission types listed in § 90.237(g) are permitted, except that

systems authorized under subsection (b)(3) of this paragraph may employ the 2K80G1D emission type.

Flash Comm believes that compliance with these conditions will allow operation without causing harmful interference to government operations or precluding existing – or future – important uses of the HF band.

The operational parameters of the rule modification proposed by Flash Comm provide flexibility, subject to necessary coordination with other users of the band appropriate for secondary use. The proposed rule modifications also provide verifiability for the FCC and government users, principally through the requirement to log all transmissions in the HF band. With a complete database of transmission times, locations, frequencies, and durations, any other user of the band can, with simple algorithms, determine a licensee's compliance with the subconditions of Sections 90.266(b)(3)(iii) and 90.266(b)(3)(ix). Other operational parameters of the system are verifiable through the equipment authorization and the NTIA coordination process specified in the rule.

As detailed in Flash Comm's application and waiver requests, needed niche services employing the unique characteristics of the HF band can be deployed consistent with these operating requirements. Clearly, the limited operations contemplated by the modification will not permit real time or voice applications, but there are a range of services needed by the public that can be accommodated by store-and-forward short message systems. Many applications, including remote railroad crossing monitoring and vehicle tracking, were identified in Flash Comm's application and the public interest benefits of such services are self-evident. These services offer ubiquity – even in the most rural parts of the continent – at a price/performance level that provides wireless solutions to previously intractable communications problems. Flash

Comm believes the Commission should therefore move forward with a Notice of Proposed Rulemaking proposing modifications to Section 90.266.

### III. Conclusion

For the foregoing reasons, Flash Comm urges the Commission to move forward with a Notice of Proposed Rulemaking to modify Section 90.266. The modifications proposed by Flash Comm protect existing and future HF band users; are consistent with the Commission's longstanding HF policies; provide maximal flexibility to new applicants; and allow a range of new and needed services to be offered to the public.

Respectfully submitted,

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